

CLAIMS

What is claimed is:

1 1. A cordless communication system capable of providing voice and data
2 service, comprising:

3 a first device; and

4 a second device capable of wireless communication with said first device via an air
5 interface;

6 wherein the air interface employs a frame structure suitable for communication of
7 asynchronous information using a HomeRF SWAP protocol and
8 isochronous information using a WDCT protocol.

1 2. The cordless communication system of claim 1, wherein the frame structure
2 includes at least one WDCT time slot suitable for communicating the isochronous
3 information if voice service is requested.

1 3. The cordless communication system of claim 2, wherein the air interface
2 utilizes a WDCT carrier frequency, bandwidth and bit duration while the at least one
3 WDCT time slot is transmitted.

1 4. The cordless communication system of claim 2, wherein the at least one
2 WDCT time slot comprises a WDCT transmit slot and a WDCT receive slot, the WDCT
3 receive slot directly following the WDCT transmit slot in the frame structure.

1 5. The cordless communication system of claim 2, wherein the at least one
2 WDCT time slot comprises a WDCT transmit slot and a WDCT receive slot, the WDCT
3 transmit slot being followed by the WDCT receive slot after approximately 5 ms.

1 6. The cordless communication system of claim 1, wherein the frame structure
2 includes a WDCT control channel suitable for controlling devices of the cordless

3 communication using voice service when no voice service is requested.

1 7. The cordless communication system of claim 6, wherein the air interface
2 utilizes a WDCT carrier frequency, bandwidth and bit duration while the WDCT carrier
3 channel is transmitted.

1 8. The cordless communication system of claim 1, wherein, if no isochronous
2 information is to be transmitted within the frame structure, the frame structure is formatted
3 to include in order a hop command, a beacon, a SWAP period suitable for transmission of
4 asynchronous information, and a WDCT control channel suitable for controlling devices
5 of the cordless communication system using voice service.

1 9. The cordless communication system of claim 1, wherein, if isochronous
2 information is to be transmitted within the frame structure, the frame structure is formatted
3 to include in order a hop command, a first WDCT transmit slot, a beacon, a first SWAP
4 period, a first WDCT receive slot, a second SWAP period, a second WDCT transmit slot,
5 a third SWAP period, a second WDCT receive slot, and a fourth SWAP period, the SWAP
6 periods being suitable for transmission of asynchronous information using a CSMA/CA
7 access mechanism according to the HomeRF SWAP protocol and the WDCT transmit and
8 receive slots being suitable for transmission of isochronous information using a TDMA
9 access mechanism according to the WDCT protocol.

1 10. The cordless communication system of claim 9, wherein the first WDCT
2 transmit slot precedes the first WDCT receive slot by approximately 5 ms, the second
3 WDCT transmit slot precedes the second WDCT receive slot by approximately 5 ms, and
4 the first WDCT transmit slot precedes the second WDCT transmit slot by approximately
5 10 ms.

1 11. The cordless communication system of claim 1, wherein, if isochronous
2 information is to be transmitted within the frame structure, the frame structure is formatted
3 to include in order a hop command, a first WDCT transmit slot, a first WDCT receive slot,

4 a beacon, a first SWAP period, a second WDCT transmit slot, a second WDCT receive slot,
5 and a second SWAP period, the SWAP periods being suitable for transmission of
6 asynchronous information using a CSMA/CA access mechanism according to the HomeRF
7 SWAP protocol and the WDCT transmit and receive slots being suitable for transmission
8 of isochronous information using a TDMA access mechanism according to the WDCT
9 protocol.

1 12. A cordless communication system capable of providing voice and data
2 service, comprising:
3 a first device; and
4 a second device capable of wireless communication with said first device via an air
5 interface employing a frame structure suitable for transmission of
6 asynchronous information utilizing a HomeRF SWAP protocol;
7 wherein, if voice service is provided between said first device and said second
8 device, the frame structure further includes at least one time slot suitable for
9 communicating isochronous information utilizing a WDCT protocol; and
10 wherein, if voice service is not provided between said first device and said second
11 device, the frame structure further includes a WDCT control channel
12 suitable for controlling devices of the cordless communication system
13 requiring voice service.

1 13. The cordless communication system of claim 12, wherein the WDCT
2 control channel is disposed at the end of the frame structure.

1 14. The cordless communication system of claim 12, wherein the air interface
2 utilizes a WDCT carrier frequency, bandwidth and bit duration while the at least one
3 WDCT time slot and the WDCT control channel are transmitted.

1 15. The cordless communication system of claim 12, wherein the at least one
2 WDCT time slot comprises a WDCT transmit slot and a WDCT receive slot, the WDCT
3 receive slot directly following the WDCT transmit slot in the frame structure.

1 16. The cordless communication system of claim 12, wherein the at least one
2 WDCT time slot comprises a WDCT transmit slot and a WDCT receive slot, the WDCT
3 transmit slot being followed by the WDCT receive slot after approximately 5 ms.

1 17. A method of providing voice and data service for communication of
2 information in a cordless communication system, comprising:
3 determining if voice service is required; and
4 communicating at least one frame of the information being communicated, the at
5 least one frame having a frame structure suitable for transmission of
6 asynchronous information using a HomeRF SWAP protocol and
7 isochronous information using a WDCT protocol;
8 wherein, if no voice service is required, the frame structure includes a WDCT
9 control channel suitable for controlling devices of the cordless
10 communication system requiring voice service; and
11 wherein, if voice service is required, the frame structure includes at least one
12 WDCT time slot suitable for communicating isochronous information.

1 18. The method as claimed in claim 17, further comprising altering the carrier
2 frequency of the air interface from a SWAP carrier frequency to a WDCT carrier frequency
3 when at least one of a WDCT control channel and a WDCT time slot are transmitted.

1 19. The method as claimed in claim 17, further comprising altering the
2 bandwidth of the air interface from a SWAP bandwidth to a WDCT bandwidth when at
3 least one of a WDCT control channel and a WDCT time slot are transmitted.

1 20. The method as claimed in claim 17, further comprising altering the bit rate
2 of the air interface from a SWAP bit rate to a WDCT bit rate when at least one of a WDCT
3 control channel and a WDCT time slot are transmitted.

1 21. The method as claimed in claim 17, wherein transmitting at least one frame
2 suitable for containing data information further comprises transmitting the WDCT control
3 channel at the end of each frame.

1 22. The method as claimed in claim 21, wherein transmitting the WDCT
2 dummy bearer at the end of the SWAP frame structure comprises transmitting the WDCT

3 control channel approximately every 20 ms.

1 23. The method as claimed in claim 17, wherein the at least one WDCT time
2 slot comprises a WDCT transmit slot and a WDCT receive slot, the WDCT receive slot
3 directly following the WDCT transmit slot in the frame structure.

1 24. The method as claimed in claim 17, wherein the at least one WDCT time
2 slot comprises a WDCT transmit slot and a WDCT receive slot, the WDCT transmit slot
3 being followed by the WDCT receive slot after approximately 5 ms.